

WHAT IS CLAIMED IS:

1. An image display device for displaying an image according to image data, comprising:
a detection unit for detecting bright parts of the image that are adjacent to dark parts of the image, from the image data;
a smoothing unit coupled to the detection unit, for smoothing the bright parts of the image that are adjacent to the dark parts of the image by filtering the image data, leaving the dark parts of the image unsmoothed; and
a display unit coupled to the smoothing unit, for displaying the image data, including the smoothed bright parts of the image and the unsmoothed dark parts of the image.
2. The image display device of claim 1, wherein the image data include data for different primary colors, and the detection unit detects said bright parts separately for each primary color.
3. The image display device of claim 1, wherein the image data include a luminance signal, and the detection unit detects said bright parts from the luminance signal.
4. The image display device of claim 1, wherein the detection unit also detects edges in the image from the image data, and controls the smoothing unit so that only bright parts of the image that are adjacent to the detected edges are smoothed.
5. The image display device of claim 1, wherein the detection unit also detects dark parts of the image having at most a predetermined width, and controls the smoothing

unit so that only bright parts of the image that are adjacent to the detected dark parts having at most the predetermined width are smoothed.

6. The image display device of claim 1, wherein the image data include data for different primary colors, and the smoothing unit uses different filtering characteristics for the different primary colors.

7. The image display device of claim 1, wherein the image data include a luminance signal, and the smoothing unit filters the luminance signal.

8. A method of displaying an image according to image data, comprising the steps of:

(a) detecting dark parts of the image from the image data;

(b) detecting bright parts of the image that are adjacent to the dark parts of the image, from the image data;

(c) smoothing the bright parts detected in said step (b) by filtering the image data, leaving the dark parts of the image unsmoothed; and

(d) displaying the image data, including the smoothed bright parts of the image and the unsmoothed dark parts of the image.

9. The method of claim 8, further comprising the steps of:

(e) detecting edges in the image from the image data; and

(f) detecting bright parts in the image that are adjacent to the detected edges;

wherein only the bright parts detected in said step (f) are smoothed in said step (c).

10. The method of claim 8, further comprising the steps of:
(g) detecting dark parts of the image having at most a predetermined width; and

(h) detecting bright parts in the image that are adjacent to the dark parts detected in said step (g);
wherein only the bright parts detected in said step (h) are smoothed in said step (c).

11. The method of claim 8, wherein the image data include data for different primary colors, and said step (c) uses different filtering characteristics for the different primary colors.

12. An image display device for displaying an image according to image data for different primary colors, comprising:

a plurality of smoothing units for filtering the image data of respective primary colors, using different filtering characteristics for the different primary colors; and

a display unit coupled to the smoothing units, for displaying the image according to the filtered image data.

13. The image display device of claim 12, wherein:

the display unit displays picture elements in which a first one of the primary colors occupies a leftmost position, a second one of the primary colors occupies a central position, and a third one of the primary colors occupies a rightmost position;

a first one of the smoothing units, filtering the image data of the first one of the primary colors, has an asymmetric filtering characteristic with a centroid shifted right;

a second one of the smoothing units, filtering the

image data of the second one of the primary colors, has a symmetric filtering characteristic; and

a third one of the smoothing units, filtering the image data of the third one of the primary colors, has an asymmetric filtering characteristic with a centroid shifted left.

14. The image display device of claim 12, wherein:

the display unit displays picture elements in which a first one of the primary colors occupies a leftmost position, a second one of the primary colors occupies a central position, and a third one of the primary colors occupies a rightmost position;

a first one of the smoothing units, filtering the image data of the first one of the primary colors, has a first passband;

a second one of the smoothing units, filtering the image data of the second one of the primary colors, has a second passband wider than the first passband; and

a third one of the smoothing units, filtering the image data of the third one of the primary colors, has a third passband narrower than the second passband.

15. The image display device of claim 12, wherein:

the display unit displays picture elements in which a first one of the primary colors occupies a first side, a second one of the primary colors occupies a central position, and a third one of the primary colors occupies a second side opposite the first side;

a first one of the smoothing units, filtering the image data of the first one of the primary colors, has an asymmetric filtering characteristic with a centroid shifted by a first amount toward the second side;

a second one of the smoothing units, filtering the

image data of the second one of the primary colors, has an asymmetric filtering characteristic with a centroid shifted by a second amount, at most equal to the first amount, toward the second side; and

a third one of the smoothing units, filtering the image data of the second one of the primary colors, has an asymmetric filtering characteristic with a centroid shifted by a third amount, less than the first amount, toward the first side.

16. A method of displaying an image according to image data for different primary colors, comprising the steps of:

(a) smoothing the image by filtering the image data, using different filtering characteristics for the different primary colors; and

(b) displaying the image according to the filtered image data.

17. The method of claim 16, wherein:

said step (b) includes displaying picture elements in which a first one of the primary colors occupies a leftmost position and a second one of the primary colors occupies a rightmost position;

said step (a) uses a first filtering characteristic having a centroid shifted right for the first one of the primary colors, and a second filtering characteristic having a centroid shifted left for the second one of the primary colors.

18. The method of claim 17, wherein:

a third one of the primary colors occupies a central position in said picture elements; and

said step (a) uses a third filtering characteristic, having a wider passband than the first filtering

characteristic and the second filtering characteristic, to filter the third one of the primary colors.

19. An image display device for displaying an image according to image data for different primary colors, comprising:

a smoothing unit filtering the image data of respective primary colors, using filtering characteristics having centroids shifted in a certain direction for all of the primary colors; and

a display unit coupled to the smoothing unit, having a screen scanned in said certain direction, displaying the image according to the filtered image data on the screen.

20. A method of displaying an image according to image data for different primary colors, comprising the steps of:

(a) smoothing the image by filtering the image data, using filtering characteristics having centroids shifted in a certain direction for all of the primary colors; and

(b) displaying the image according to the filtered image data on a screen scanned in said certain direction.

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